

was attended by snow on Lake Superior, but at no point did the wind reach gale force.

*Storm warnings on the Atlantic Coast.*—Storm warnings were displayed at 9:30 a. m. on the 1st at and between Portsmouth, N. H. and Delaware Breakwater; on the 3d at and between Cape Henry, Va., and Boston, Mass.; on the 23d at and between Eastport, Me., and Sandy Hook, N. J. The disturbance of the 3d to 6th, for which ample and timely warning was given, was the only severe storm of the month at the Atlantic coast. This storm had its origin over the East Gulf States on the 2d and on the morning of the 3d it was central over South Carolina, whence it moved north-northeastward and the morning of the 4th it was central over the lower Chesapeake Bay. During the 4th, 5th and 6th a severe northeaster was general along the coast north of the Virginia Capes to the vicinity of Boston. Storm winds prevailed at all points where warnings had previously been displayed. The maximum velocity reported was 60 miles per hour from the northeast at Block Island, R. I., on the 5th.

*Storm warnings on the East Gulf Coast.*—No storm warnings were ordered for the East Gulf Coast during the month; none were required.

*Frost warnings.*—Warnings of frosts or temperatures injurious to vegetation were issued on a number of days for the northern and middle portions of the district. No frosts of consequence occurred in the Southern States.

#### CHICAGO FORECAST DISTRICT.

The temperature during the first half of the month of May, 1921, averaged below normal generally over the greater portion of the Chicago forecast district, especially in eastern sections, while the latter half was unusually warm, record-breaking maxima being registered at many points in the middle Mississippi and lower Missouri valleys during the closing days of the third decade.

Warnings of frost or freezing temperature were of frequent occurrence during the first half of the month and were issued for various portions of the district on the 1st, 2d, 3d, 4th, 8th, 11th, 12th, 13th, 14th, and 15th. The most pronounced periods of cool weather during which frosts and temperatures near freezing occurred progressively over the district were those from the 1st to the 5th, inclusive, and from the 12th to 16th, inclusive.

Special frost warnings were sent to the cranberry growers of Wisconsin on the 1st, 2d, 3d, 4th, 13th, 15th, 16th, 28th, and 31st. No live stock warnings were issued during the month and the only frost warning during the latter half was issued for Montana on the 27th.—*E. H. Haines.*

#### NEW ORLEANS FORECAST DISTRICT.

Quiet conditions prevailed except for strong winds occurring locally in a few thunderstorms. No storm warnings were issued or required.

Warning of frost in low places in Arkansas was issued on the 3d and 4th, and frost occurred in the extreme northern portion of that State.—*R. A. Dyke.*

#### DENVER FORECAST DISTRICT.

The weather during the month was dominated largely by a series of low pressure areas from the Plateau region, and cool and wet weather prevailed in the greater part of the district. In eastern Colorado, however, the weather was warm and dry.

Frost or freezing temperature warnings were issued for parts of the District on the 1st, 3d, 7th, 8th, 9th, 10th, 12th, 13th, 17th, and 18th, and were followed generally by frost temperatures or freezing weather in localities. On the 13th, however, the anticipated rise in barometer did not occur in northern New Mexico and temperatures remained well above freezing. No warnings were issued after the 18th, and no damaging weather conditions occurred.—*Frederick W. Brist.*

#### SAN FRANCISCO FORECAST DISTRICT.

There was a great deal of unsettled weather in this district during the month, but no very severe storms occurred. Storm warnings were displayed on the 5th along the southern California coast, and small craft warnings were ordered on the 1st at Point Reyes and on the 28th along the entire California coast. All of these warnings were fully verified.

The following unsolicited testimonial, dated Summerland, Calif., May 31, 1921, was received from Mr. W. J. Turrentine, in charge of the work of extracting potash from kelp in southern California:

I take this occasion to thank you and the members of your organization for the splendid service you have given us during the past four years. Your warnings have been a source of a great deal of comfort, and have been of the greatest service to us in enabling us to take precautions upon the approach of storms. We have gotten by during the four years without any damage from the elements, and the success has been due largely to your kind assistance. Your cooperation is most heartily appreciated.

The potash plant operated a barge in the open sea, and consequently it was more frequently endangered than a stauncher craft would have been under similar weather conditions. The potash works will cease operations on June 30, 1921, and for this reason the special warnings furnished them will no longer be required.

Frost warnings were sent to one or more places on ten occasions, mostly to stations in the Plateau section of this district, and they were generally verified.

The feature of the month, besides the prevalence of many days with unsettled weather, was the phenomenal rains in southern California from the 20th to the 23d. They broke all previous records for the month of May, but they were not heavy enough to cause floods of consequence nor to overcome the deficiency in precipitation for the season, though they materially lessened it. On account of the temperatures being below normal, the runoff of streams in California and Nevada was barely sufficient for irrigation and hydroelectric needs.—*E. A. Beals.*